

**Jeopardy Assessment**  
for the Proposed Incidental Taking Authorization  
of the State-Threatened Buckhorn Mussel (*Tritogonia verrucosa*)  
in the Wolf River

Pier Piling Proposals for the Merritt and Glaser Properties on the Lower Wolf River  
Town of Fremont, Waupaca County, Wisconsin

**Background**

The Wolf River supports a diverse assemblage of 30 native freshwater mussel species that includes two state-endangered, three state-threatened and three special concern species (*Epioblasma triquetra*/Snuffbox, *Tritogonia verrucosa*/Buckhorn, *Alasmodonta viridis*/Slippershel, *Simpsonaias ambigua*/Salamander mussel, *Pleurobema sintoxia*/Round pigtoe, *Alasmodonta marginata*/Elktoe, *Truncilla donaciformis*/Fawnsfoot). Observations by WDNR personnel have revealed that a very diverse mussel community continues to exist in the lower Wolf River. The mussels occur in areas of suitable habitat within the river primarily in low to moderate density, with occasional mussel beds supporting high densities.

Freshwater mussels are considered to be the most imperiled species group in North America. Freshwater mussels are dependent on fish as parasitic hosts for their larvae. This dependency relationship is one reason why mussels are imperiled, especially for mussel species that are host specific and where these host populations are threatened. The primary threats to mussels include degradation of water quality and alteration of the physical environment where these species live. As filter feeders, mussels are particularly vulnerable to pollution. They are also impacted by the alteration of flows, changes in current patterns, water depths and siltation. Dams have caused significant negative impacts to mussels by fragmenting populations and by limiting migration patterns of essential host fish. Historic log rafting of timber on the Wolf River resulted in significant changes to the river bed and increased erosion resulting from land management practices within the Wolf River watershed has affected water quality and limited suitable habitat for mussels in the river. As a result, the number of mussels in the Wolf River has declined over time.

The Wolf River, like many rivers in the state, has experienced an increase in recreational boating. The size and speed of boats has continued to increase over the past several decades. This results in increased disturbance of mussels and mussel beds, especially in areas with lower water depth. There has also been a subsequent increase in applications to the Department for piers and pilings to accommodate the increase in boats numbers and boat sizes. These structures also have the potential to impact mussels as a result of their installation.

**Jeopardy Assessment**

Pier pilings are vertical structures that are installed in the river bed and extend above the water surface. Single pilings are typically used for pier supports. Piling structures or 'pile clusters' are typically a cluster of three poles that deflect ice flows away from piers in order to reduce pier damage following ice break-up in spring. The pilings vary from 10-14 inches in diameter each and are pile-driven several feet into the substrate by an overhead barge. Most piling clusters directly impact an area of less than one square meter of the river bed.

The proposed Merritt and Glaser piling projects are located in the lower Wolf River and have the potential to impact the state-threatened buckhorn mussel (*Tritogonia verrucosa*). However, there is a low likelihood that the proposed piling projects will result in the take of mussels, particularly a listed species, because the mussels occur in low densities within a very limited impact area. The department

has determined that the proposed project is not likely to jeopardize the continued existence or recovery of the state population of these mussels or the whole plant-animal community of which they are a part so long as the minimization requirements below are strictly adhered to.

### **Minimization Requirements**

- Prior to the installation of the pilings, the installation contractors are required to rake the footprint where the piling will be placed. The area to be raked must not be more than 2 meters square and raked to a depth of at least 6 inches. The goal of the raking is to remove the mussels in the piling footprint and place them into adjacent habitat. The raked material shall NOT be placed downstream of the location where the pilings will be driven and should be at least a meter away from any impact area.
- The bottom and props of the barge must avoid contact with the river bed (e.g. cannot be grounded on the near shore side). The contractors conducting the work are required to rake the substrate where the barge stabilization feet will be placed on the river bed following provisions indicated above. No more than one square meter of substrate is to be raked per stabilization foot. This may result in the barge being stabilized in deeper water. The purpose is to avoid and minimize disturbance to the bottom of the river as a result of the barge activities.